

REMARKS

Reconsideration is respectfully requested. Claims 1-4 were pending, and were rejected pursuant to 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,601,893 to Strassel ("Strassel"). [5/19/06 Office Action at p. 2]. These rejections of claims 1-4 are respectfully traversed

First, the alloy resin element of claim 1 is not shown in the cited reference.

Specifically, Applicant's claim 1 recites:

1. A resin-coated steel pipe with superior mechanical strength, including an ability to slide, wherein an alloy resin which is a mixture of a styrene-based resin and a crystalline engineering plastic is coated over an outer peripheral surface of a thin-walled steel pipe and is bonded thereto by an adhesive, and said crystalline engineering plastic having a thickness necessary to exhibit a required mechanical strength, including said ability to slide, is coated over an outer peripheral surface of said coated resin such that said resin-coated steel pipe has a double coated structure with a uniform cross-sectional form along an axial direction thereof.

Strassel is directed to a flexible metal pipes with a shrinkable polymer sheath. As shown in Figure 2, Strassel discloses a coated metal pipe:

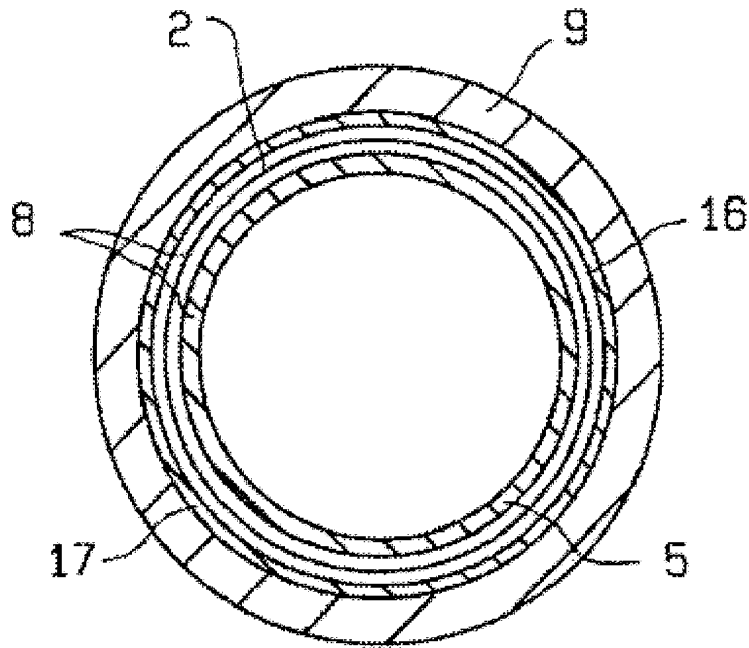


FIG. 2

In this figure, the flexible metal pipe (2) is coated with an outer shrinkable polymer layer (9). “Interlocking articulation lips” (16, 17) are provided on the pipe (2) and create voids between the metal pipe (2) and the outer shrinkable polymer layer (9). These voids are filled with an intermediate, elastomer layer (8).

The office action asserted that the outer shrinkable polymer layer (9) corresponds to the “alloy resin” coating recited in Applicants’ claim 1. [5/19/06 Office Action at p. 2].

However, that shrinkable polymer (9) is, according to Strassel, selected from polyolefins, polyamides, polyurethanes, polyureas, polyesters, polyethers,

polyoxides, polysulfides, polyether-ether-ketones, copolymers of the preceding, homopolymers and copolymers of vinylidene fluoride (“VF₂”), homopolymers and copolymers of trifluoroethylene (“VF₃”), copolymers and terpolymers comprising two or more different members selected from the group consisting of VF₂, VF₃, chlorotrifluoroethylene, tetrafluoroethylene, hexafluoropropene, and ethylene. [Strassel, Col. 5, lines 20-41 and Col. 16, lines 45-58]. Accordingly, Strassel does *not* teach, disclose or suggest that the shrinkable polymer layer (9) is an alloy resin which is a mixture of a styrene-based resin and a crystalline engineering plastic. There is simply no mention of styrene-based resins in connection with this aspect of Strassel’s disclosure.

In connection with the separate, intermediate elastomer layer (8), Strassel discloses that “[s]uitable elastomeric polymers not only include elastomers proper... but also thermoplastic elastomers” [Strassel, Col. 5, lines 64-66]. Among the five categories of thermoplastic elastomers identified by Strassel are “polystyrene-based” copolymers (e.g., SBS, SIS, or SEBS). [Strassel, Col. 6, lines 15-19]. Again, we note that this intermediate elastomer layer (8) of Strassel is positioned in voids between the pipe (2) and the shrinkable polymer layer (9). The office action had alleged that this elastomer “acts as an adhesive layer for the remaining layers.” [5/19/06 Office Action at p. 2].

To the extent that the office action would assert that the intermediate elastomer layer (8) corresponds to the “alloy resin” coating recited in Applicants’ claim

1, Applicants note that Strassel fails disclose that the poly-styrene-based copolymers are mixed with crystalline engineering plastics.

Moreover, there is no teaching, disclose or suggestion in Strassel that the intermediate elastomer layer (8) and the resins of the shrinkable polymer layer (9) are mixed / alloyed together.

The office action further asserts that “an additional plastic layer can then optionally be provided above the elastomer layer.” [5/19/06 Office Action at p. 2]. No specific citation in Strassel is provided for this allegation. Applicant’s review of Strassel found no such disclosure. At best, Strassel discloses that a thin sheet (e.g., fabric) between the pipe and the elastomer layer:

“A variation of this invention, not illustrated, consists in the interpositioning of a thin sheet produced by wrapping one or several layers of a tape, made for instance of a fabric, of fibers or of a plastic material optionally fiber-reinforced, between the flexible metal pipe (1) and the intermediate elastomer layer (8). For easier industrial production, the wrapping of the tape may take place by the overlaying of a sheet of regular characteristics; the elastomer material supporting the tape is not in contact with the surface of the flexible pipe and is therefore not affected and/or degraded by the surface irregularities created by such overlaying. One uses preferably a tape of sufficient mechanical strength so that the sheet permits easy partial and regular filling of the interstitial spaces (5) with the elastomer of the intermediate layer.” [Strassel, Col. 11, lines 42-56].

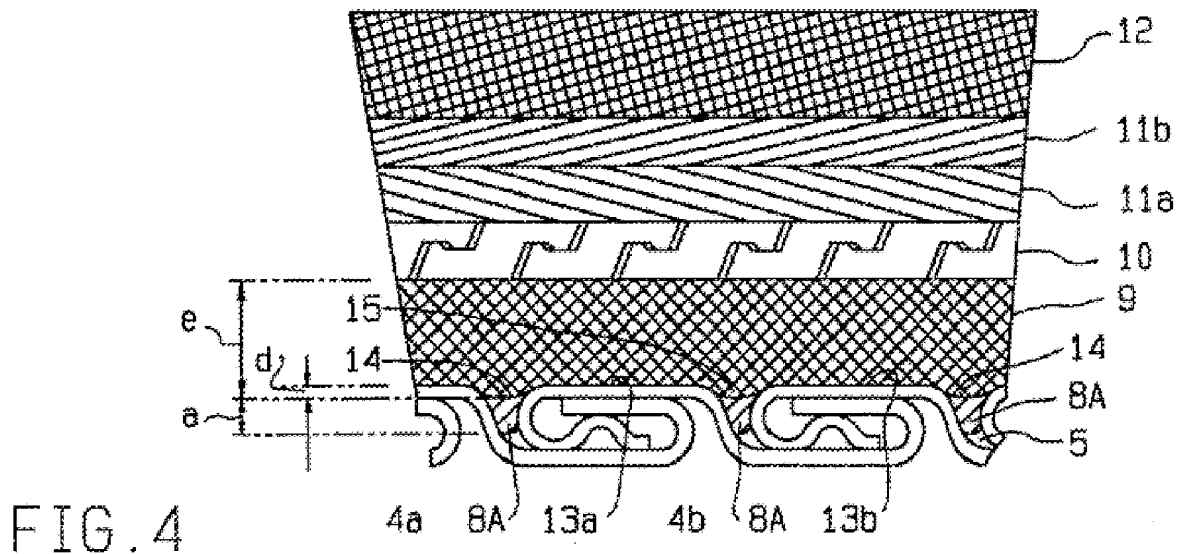
Accordingly, Strassel fails to teach, disclose or suggest “an alloy resin which is a mixture of a styrene-based resin and a crystalline engineering plastic is coated over an outer peripheral surface of a thin-walled steel pipe and is bonded thereto by an

adhesive” as recited in Applicants’ claim 1. For at least this and similar reasons, Applicants’ independent claim 1 and its dependent claims 2-4 are respectfully asserted to be patentable over Strassel. For at least similar reasons, claims 5-14 also are respectfully asserted to be patentable over Strassel.

Second, the furrows and ridges element of Applicants’ claim 3 and 4 is not show. Specifically, claims 3 and 4 recite, *inter alia*, “said alloy resin bonded and coated over said outer peripheral surface of said thin-walled steel pipe has furrows and ridges formed alternately in a circumferential direction of said thin-walled steel pipe, said furrows and said ridges extending in an axial direction of said thin-walled steel pipe.”

The office action alleges that such ridges and furrows are shown in Strassel’s Figures 4 and 6, which figures are longitudinal cross sections. [Strassel, Col. 4, lines 5-7 and 13-16]. In other words, the axial direction of the pipe would be in a generally right/left direction across the page. We understand the office action to allege that certain interstitial spaces (8a) correspond to the furrows and the raised areas of the corrugated pipe correspond to the ridges.

Strassel's Figure 4 is reproduced below:



Any “furrows” and “ridges,” if they could be called that, run in a generally circumferential direction – not an axial direction. The interstitial spaces (8a) shown in Figure 8 would run around the circumference of the pipe, and not along the axial direction.

Also, these “furrows” and “ridges” are formed in the pipe itself. The shrinkable polymer layer (9) is said by the office action to correspond to the “alloy resin” recited in the claims. That shrinkable polymer layer (9) is shown in Figures 4 and 6 to be smooth, particularly along the exterior, top surface.

Accordingly, Strassel fails to teach, disclose or suggest “said alloy resin bonded and coated over said outer peripheral surface of said thin-walled steel pipe has furrows and ridges formed alternately in a circumferential direction of said thin-walled

steel pipe, said furrows and said ridges extending in an axial direction of said thin-walled steel pipe” as recited in Applicants’ claims 3 and 4.

Applicants have chosen in the interest of expediting prosecution of this patent application to distinguish the cited documents from the pending claims as set forth above. These statements should not be regarded in any way as admissions that the cited documents are, in fact, prior art.

Finally, Applicants have not specifically addressed all the rejections of the dependent claims. Applicants respectfully submit that the independent claims, from which they depend, are in condition for allowance as set forth above. Accordingly, the dependent claims also are in condition for allowance. Applicants, however, reserve the right to address such rejections of the dependent claims in the future as appropriate.

CONCLUSION

For the above-stated reasons, this application is respectfully asserted to be in condition for allowance. An early and favorable examination on the merits is requested. In the event that a telephone conference would facilitate the examination of this application in any way, the Examiner is invited to contact the undersigned at the number provided.

THE COMMISSIONER IS HEREBY AUTHORIZED TO CHARGE ANY ADDITIONAL FEES WHICH MAY BE REQUIRED FOR THE TIMELY CONSIDERATION OF THIS AMENDMENT UNDER 37 C.F.R. §§ 1.16 AND 1.17, OR CREDIT ANY OVERPAYMENT TO DEPOSIT ACCOUNT NO. 13-4500, ORDER NO. 4746-4000.

Dated: July 31, 2006

Respectfully submitted,
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